

Display

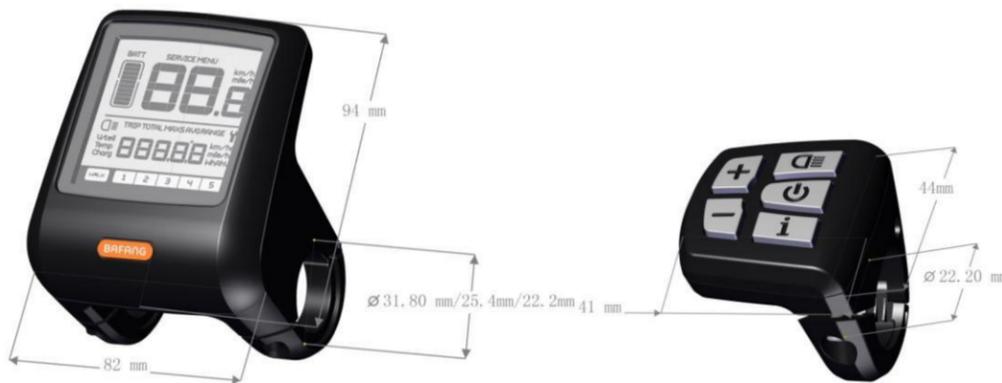
Specifications and Parameters of the Display

- 48V Power Supply;
- Rated Current: 10.4mA
- Maximum Operating Current: 30mA
- Power-off Leakage Current: <1uA
- Operating Current Supplied to the Controller: 50mA
- Operation Temperature: -18 ~ 60 °C
- Storage Temperature: -30 ~ 70 °C
- Waterproof Grade: IP65
- Storage Humidity: 30%-70%

Appearance and Dimensions

Materials and Dimensions

- The shell is made of PC (poly carbonate). The liquid crystal interface is made of hard hardness acrylic.

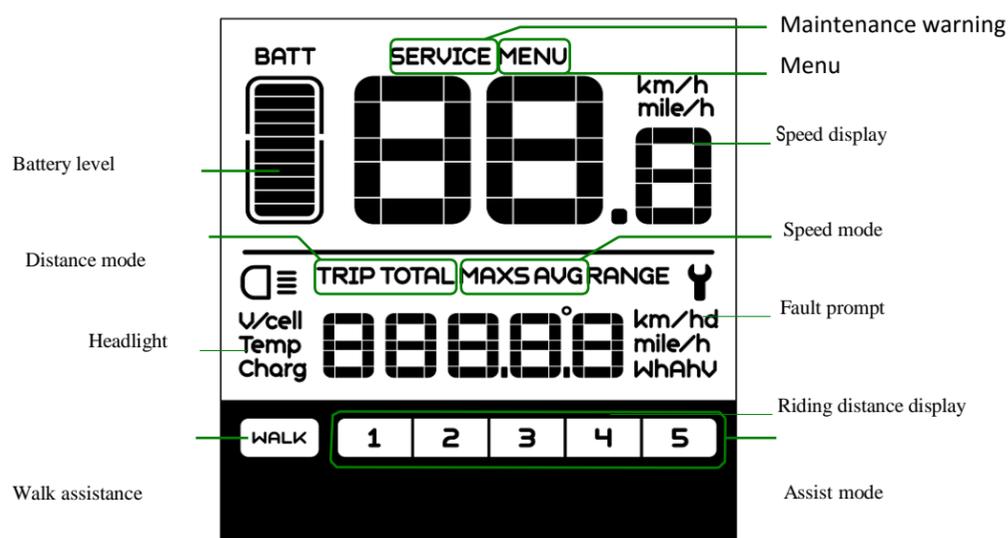


Function Overview and Key Definitions

Function Overview

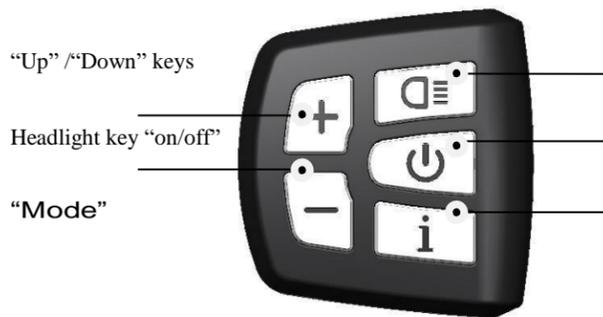
- The display adopts a two-way serial communication protocol. The external five-key keypad enables users to operate the display conveniently.
- Speed display: displaying the real-time speed, the max speed MAXS and the average speed AVG.
- Km or mile: the user can set the unit of distance as km or mile according to personal habit.
- Intelligent battery level indication: with an optimization algorithm, a stable display of the battery level is ensured, and the problem of fluctuant battery level indication common with an average display is avoided.
- Automatic light-sensitive headlight/taillight: as the outside light changes, the headlight and taillight will be automatically turned on/ off.
- Backlight brightness: there are 5 levels of brightness for the display backlight, of which Level 1 indicates the darkest backlight while Level 5 indicates the brightest backlight.
- Mode indication: it displays the current assist mode (Mode 1 to Mode 5);
- Trip distance indication: there are two distance modes, single-trip distance TRIP and accumulated distance, TOTAL. The displayable max distance is 99999.
- Fault code prompt.
- Walk assistance.
- Parameter settings: various parameters, including mode, wheel diameter, speed limit, etc. can be set on the computer via a communication cable. See the parameter setting instruction document for details.
- Maintenance warning (this function is inactive by default): there prompts, on the display, maintenance warning information based on battery charge/discharge cycles and riding distance. The display automatically estimates the battery life, and gives battery maintenance warnings when the number of charge/discharge cycles exceeds the set value. When the accumulated riding distance exceeds the set value, the display will also prompt bicycle maintenance necessity.

Items to be Shown on the Display



- **Speed mode:** average speed (AVG km/h), maximum speed (MAXS km/h)
- **Speed display: display of the speed, km/h or mile/h**
- **Battery level:** 10-segment battery indication; the voltage that each segment represents can be customized
- - **Headlight indication:** only active when the headlight and backlight are on.
 - **Fault prompt:** the symbol  will be displayed when a fault is detected.
 - **Maintenance warning** (inactive by default): the symbol **SERVICE** is displayed when there is a need for maintenance (the riding distance or the number of battery charge/discharge cycles exceeds the set value)
 - **Mode indication:** it displays the current assistance mode (mode 1 to mode 5); if there is no numeric display, it means that there is no assistance. If the rider is walking and pushing his/her bicycle, only the symbol  will be displayed.
 - **Distance mode:** there are two distance modes, single-trip range TRIP and accumulated distance, TOTAL.
 - **Distance indication:** it displays the information on distance according to the settings.

Key Definitions



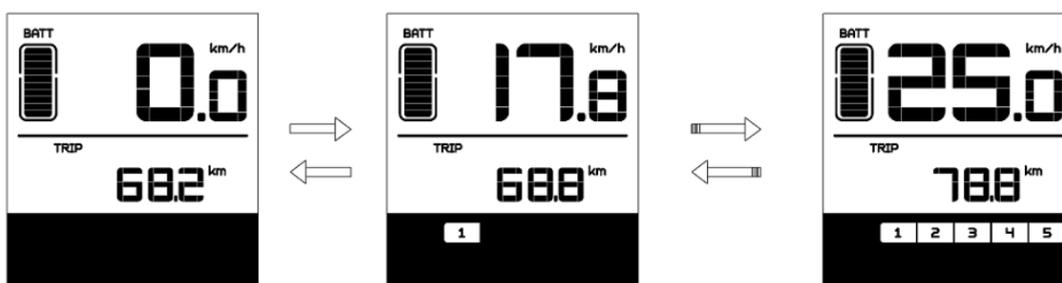
Normal Operation

On/off

Turn on the power. Press and hold the "on/off" key for 2 seconds to power on the display; when the display is on, pressing and holding the "on/off" key for 2 seconds will power off the display. If the bike is left unused and the display is left un-operated for 5 minutes (the time can be set by the user), the display will be automatically turned off.

Assist Mode Selection

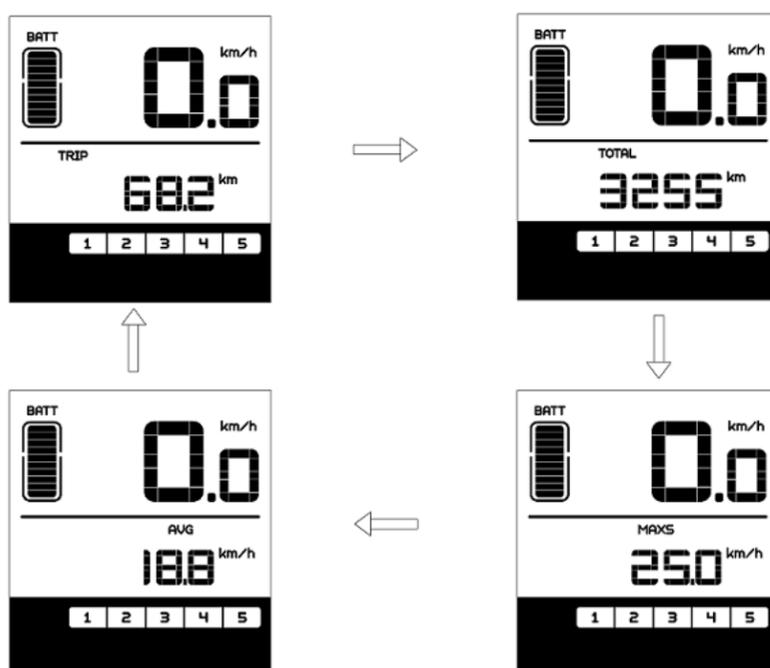
In the manual gearshift mode, press the "up" or "down" key to switch the assist mode to change the motor assist power. The lowest mode is Mode 1 and the highest mode is Mode 5. When the display is on, the default mode is Mode 1. It indicates no power assist when there is no numeric mode display.



Assist Mode Selection Interface

Distance Mode and Speed Mode Switch

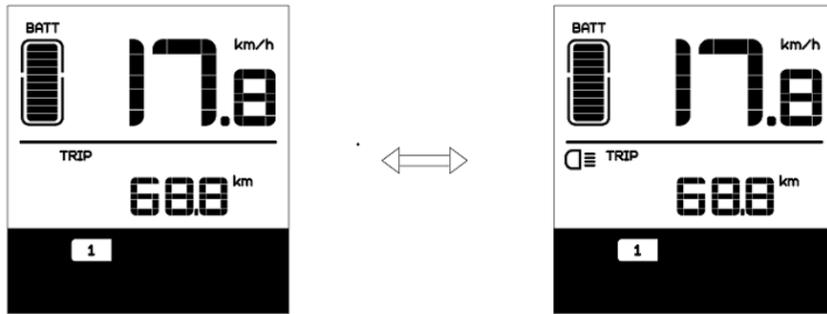
Press the "mode" key to switch distance/speed display information, giving a display of single-trip distance (TRIP km), accumulated distance (TOTAL km), maximum riding speed (MAXS km/h) and average riding speed (AVG km/h) sequentially.



Mode Switch Interface

Headlight/ Backlight Switch

After pressing and holding the "headlight" key for 2 seconds, both the backlight of the display, and the headlight (needing the support of the controller) will be turned on. Hold and press the headlight again for 2 seconds to power off the headlight and the display backlight (If the display is turned on in a dark environment, the backlight/ headlight will be automatically turned on. But if the backlight/ headlight is then manually turned off, they have to be manually turned on afterwards).

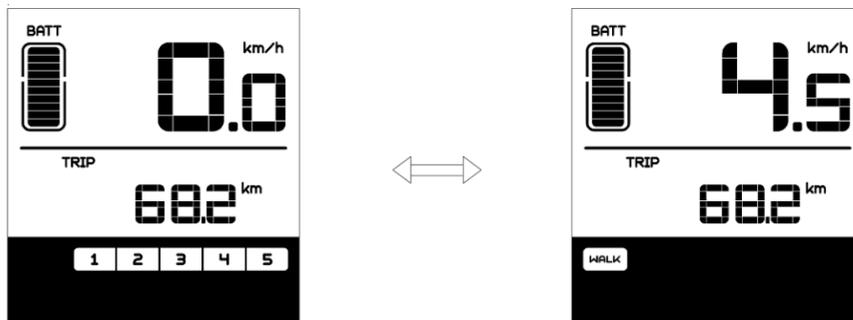


Headlight/Backlight On/off Interface

* There are 5 levels of backlight brightness for selection and the user can set the value as needed.

Walk Assistance Mode

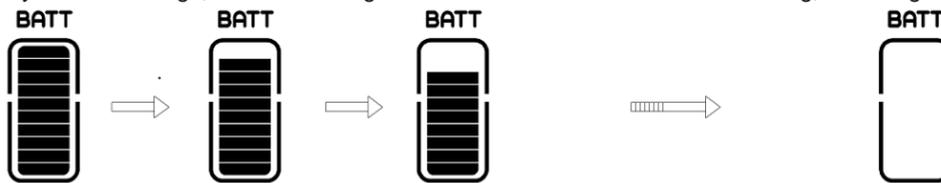
After pressing and holding the "down" key for 2 seconds, the electric bicycle enters the state of walk assistance, and the symbol **WALK** is displayed in the field of assistance mode. Once the "down" key is released, the electric bicycle will exit the mode of walk assistance.



Walk Assistance Mode Switch Interface

Battery Level Indication

When the battery voltage is normal, the battery is indicated by a certain number of segments with the border lighted according to the actual quantity of electricity. If the battery is under-voltage, all of the 10 segments will black out with the border blinking, indicating that the battery needs to be charged immediately.



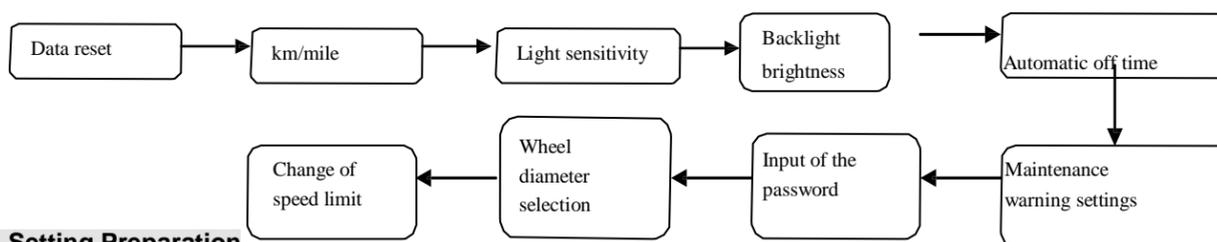
Battery Level Indication

Table for Battery Level Check:

Number of Segments	Electric Quantity in Percentage	Number of Segments	Electric Quantity in Percentage	Number of Segments	Electric Quantity in Percentage
10	$\geq 90\%$	6	$50\% \leq C < 60\%$	2	$15\% \leq C < 25\%$
9	$80\% \leq C < 90\%$	5	$45\% \leq C < 50\%$	1	$5\% \leq C < 15\%$
8	$70\% \leq C < 80\%$	4	$35\% \leq C < 45\%$	border blinking	$C < 5\%$
7	$60\% \leq C < 70\%$	3	$25\% \leq C < 35\%$		

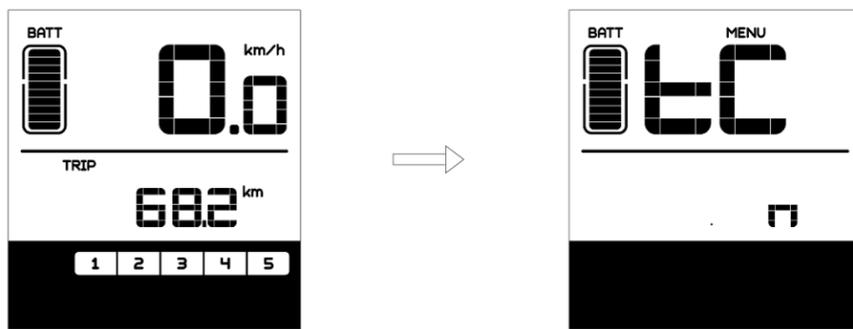
Parameter Setting

Items to be Set:



Setting Preparation

When the display is active, pressing the "mode" key two times (the interval between the two pressing actions should be shorter than 0.3 seconds), the system will enter the MENU parameter setting state, in which the display parameters can be set. Press the "mode" key two times (the interval between the two pressing actions should be shorter than 0.3 seconds) once again to exit the parameter setting state.



Enter the Parameter Setting Interface

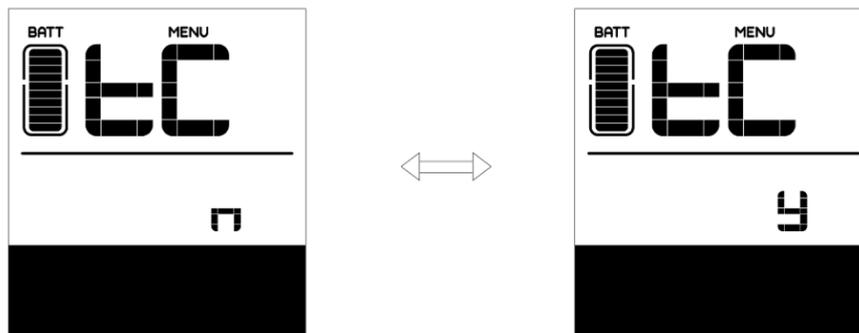
In the parameter setting state, when the parameter to be set begins to flash, press the "up" or "down" key to adjust the parameter value. Press the "mode" key to switch among the to-be-set parameters. Press the "mode" key two times (the interval between the two pressing actions should be shorter than 0.3 seconds) to exit the parameter setting state.

*** In the parameter setting state, if no operation is performed to the display for 10 seconds, the display will return to the normal riding state.**

Data Reset:

After pressing the "mode" key 2 times (the interval between the two pressing actions should be shorter than 0.3 seconds), the display enters the MENU state. In this state, the speed field displays tC and then also displays y after pressing the "up" key. At this moment, the temporary data, including maximum speed (MAXS), average speed (AVG) and single-trip distance (TRIP) can be cleared. After this setting, press the "mode" key for shorter than 0.3 seconds to enter the km/mile setting interface.

If the user has never made any reset operation, the single trip distance and the accumulated riding time will be automatically cleared when the accumulated riding time exceeds 99 hours and 59 minutes.

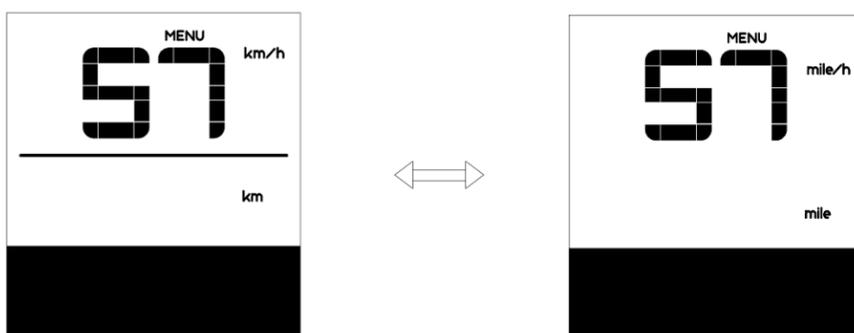


***When the display or the bicycle powers off, the above-mentioned data won't be cleared!**

Km/ mile:

When the speed field displays S7, press the "up" or "down" key to switch between km/h and mile/h or km and mile.

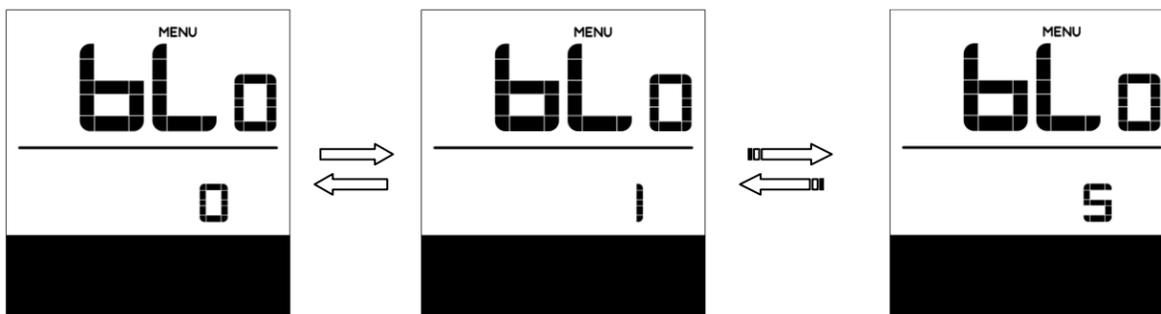
After this setting, press the "mode" key for shorter than 0.3 seconds to enter the setting interface of light sensitivity.



Light Sensitivity:

When the speed field displays bL0, press the "up" or "down" key to display a figure between 0 to 5. 0 represents the shutdown of light-sensing function. As the figure increases, light sensitivity gradually increases.

After this setting, press the "mode" key for shorter than 0.3 seconds to enter the setting interface of backlight brightness.

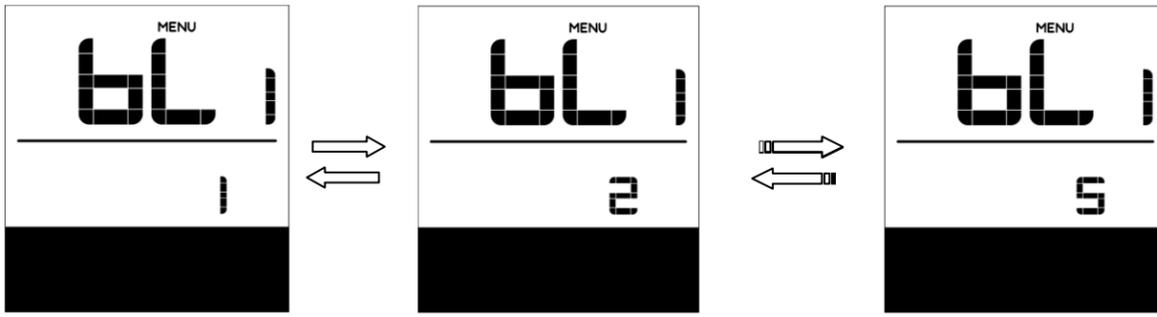


Backlight Brightness:

When the speed field displays bL1, press the "up" or "down" key to display a figure between 1 to

5. The figure 1 represents the lowest backlight brightness while 5 indicates the highest backlight brightness.

After this setting, press the "mode" key for shorter than 0.3 seconds to enter the setting interface of automatic off time.



Automatic Off Time:

When the speed field displays OFF, press the “up” or “down” key to display a figure between 1 to 5. This figure indicates the minute that it takes to automatically shut down the display.

After this setting, press the "mode" key for shorter than 0.3 seconds to enter the setting interface of maintenance warning.

MOTOR SPECS

This extremely strong driving rear motor has a maximum power of 750 watts.

SPECIFICATIONS

Core Data

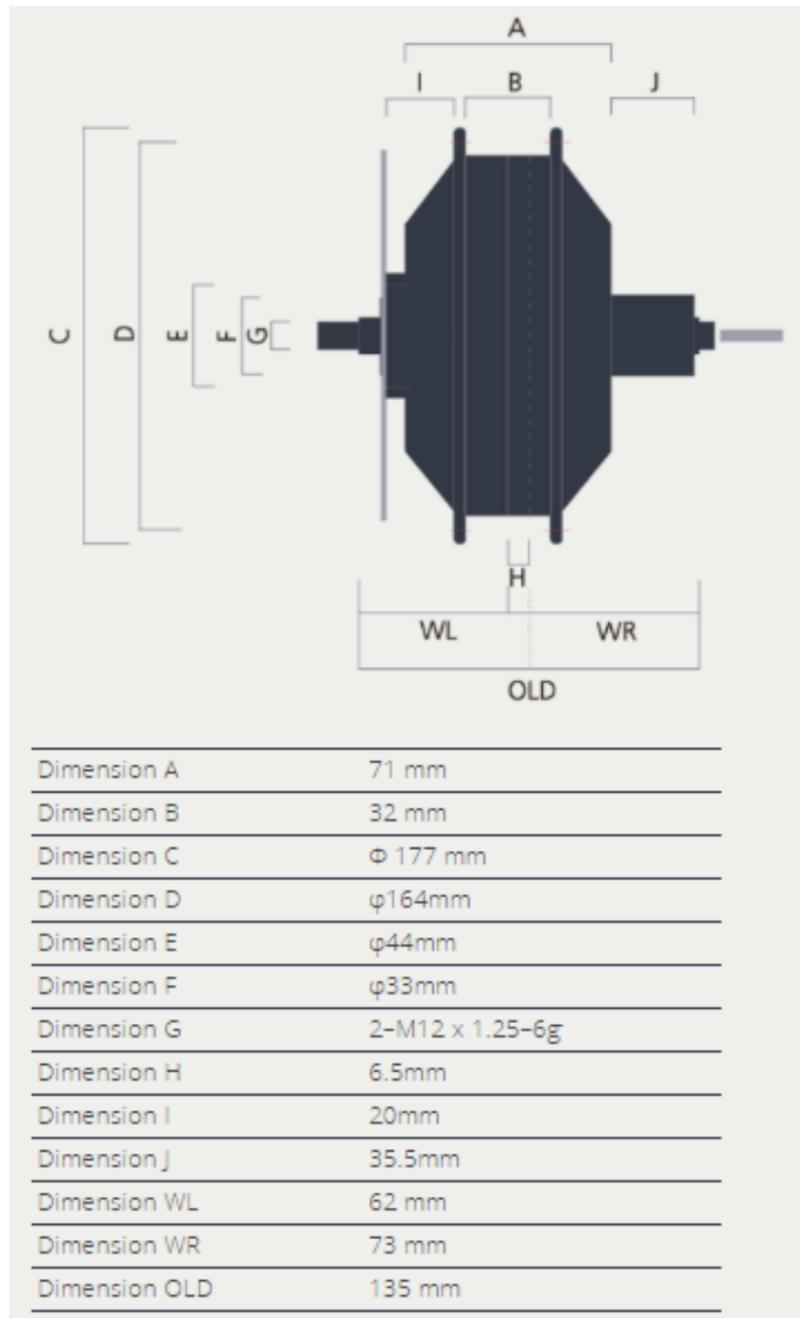
Position	Rear Motor
Construction	Geared Motor
Nominal Voltage	48V
Power	500 W
RPM	315-240
Torque	60-80 Nm
Efficiency	≥80
Mounting Parameters	
Brake	Disc Brake
Weight	≤4.6 kg
Installation Widths	135 mm
Cabling	Shaft Center, Right
Spoke Specification	12G/13G

Further Specifications

Cadence (Pulses/Cycle)	6/1
Reduction Ratio	1:5
Magnet Poles	20
Noise	< 55 dB
Hall Sensor	optional
Connector	optional

Tests & Certifications

IP-Code	IP 65
Compliance	ROHS
Label	CE



Battery

Precautions

- If any liquid leaking from the battery gets into your eyes, immediately wash the affected area thoroughly with clean water such as tap water without rubbing your eyes, and seek medical advice immediately. If this is not done, the battery liquid may damage your eyes.
- Do not recharge the battery in places with high humidity or outdoors. Doing so may result in electric shock.
- Do not insert or remove the plug while it is wet. If this is not observed, electric shocks may result. If there is water leaking out of the plug, dry it thoroughly before inserting it.
- If the battery does not become fully charged after 6 hours of charging, immediately unplug the battery from the outlet to stop charging, and contact the place of purchase. Not doing so may cause overheating, bursting, or ignition of the battery.
- Do not use the battery if it has any noticeable scratches or other external damage. Doing so may cause bursting, overheating or problems with operation.
- The operating temperature ranges for the battery are given below. Do not use the battery in temperatures outside these ranges. If the battery is used or stored in temperatures outside these ranges, fire, injury or problems with operation may occur.
- Temperature for discharge: $-10\text{ }^{\circ}\text{C}$ - $50\text{ }^{\circ}\text{C}$
- Temperature for charging: $0\text{ }^{\circ}\text{C}$ - $40\text{ }^{\circ}\text{C}$

Danger

- Do not deform, modify, disassemble or apply solder directly to the battery. Doing so may cause leakage, overheating, bursting, or ignition of the battery.
- Do not leave the battery near sources of heat such as heaters. Do not heat the battery or throw it into a fire. Doing so may cause bursting or ignition of the battery.
- Do not subject the battery to strong shocks or throw it. If this is not observed, overheating, bursting, or fire may occur.
- Do not place the battery into fresh water or sea water, and do not allow the battery terminals to get wet. Doing so may cause overheating, bursting, or ignition of the battery.
- Use the specified charger and observe the specified charging conditions when charging the battery. Not doing so may cause overheating, bursting, or ignition of the battery.
- Do not short-circuit the discharge port with a metal part, or else it may cause overheating, bursting, or ignition of the battery
- Do not leave the battery in a place exposed to direct sunlight, inside a vehicle on a hot day, or other hot places. Doing so may result in battery leakage.
- If any leaked fluid gets on your skin or clothes, wash it off immediately with clean water.
- The leaked fluid may damage your skin.
- Store the battery in a safe place out of the reach of infants and pets

Use the Battery Properly

The battery can always be charged at any time no matter how much power is left. However, in the following cases, you should have the battery fully charged. Make sure to use the specified charger to charge the battery.

- The battery is usually not fully charged for the convenience of transport. Make sure the battery is fully charged before using the battery.
- If the battery is not intended for use in a long time, make sure the e-bike battery is charged before storage and is afterwards charged at least once every twelve months. Do not leave the battery completely discharged.
- Once you have begun to use the battery, please have it charged at least once every two weeks.

Note: If the battery is completely discharged, charge it as soon as possible. If you do not charge the battery, it will be damaged.

Charge the Battery

- When using the battery for the first time, check whether the battery has not run low due to transportation or storage.
- When the battery is not intended for use in a long time, charge the battery regularly to avoid excessive battery discharge.
- Please charge the battery as soon as possible before it runs out; over-discharge can cause permanent damage to the battery.
- No matter how much power is left, the battery can be charged at any time. However, the specified charger must be used to avoid overcharge of the battery.
- To maintain the proper use of the battery, do not subject the battery to heavy shocks or a heat source, or disfigure the battery or short circuit its terminals.

